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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,825	11/21/2003	Donald Paul Richmond II	1008.743.301	1336

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EXAMINER

VAZQUEZ, ARLEEN M

ART UNIT	PAPER NUMBER
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2829

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/718,825	Applicant(s) RICHMOND ET AL.	
	Examiner Arleen M. Vazquez	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-47 is/are pending in the application.
- 4a) Of the above claim(s) 40-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/21/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election of claims 27-40 of invention *I*. in the reply filed on 03/14/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 41-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03/14/2007.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 27-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "*rigid*" in claim 31, the term "*flexible*" in claim 32 and the term "*bendable*" in claim 37 are relative terms that render the claims indefinite. The terms "*rigid*", "*flexible*" and "*bendable*" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

4. Claims 27, 34 and 38 recite the limitation "said cool zone" in lines 5, 2 and 1, respectively. There is insufficient antecedent basis for this limitation in the claim. Claim

39 recites the limitation "the first electronics" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 37 recites the limitation "said second interconnection system" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claims 28-33,37 and 38-39 not specifically addressed share same indefiniteness as independent claim 27.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 27-37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over *DeHaven et al. (US 5,701,666)* in view of *Chong, Jr. et al. (US 6,377,471)*.

For claims 27 and 40 having the phrase of "configured to", applicant is reminded that claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. The limitation of "configured to" is given patentably weight according to the doctrine of MPEP 2111.04.

As to claim 27, *DeHaven et al.* discloses in Figures 5-7 a system comprising a temperature controlled zone (temperature in chamber 12 is controlled by heating/cooling elements 80,82 and by temperature circuitry 50,52 in wafer 16) configured to receive a plurality of cartridges (formed by cables 20,22, connectors 24,26

and fixtures 90,92 which are holding each wafer) each containing a semiconductor wafer (14,16), power electronics (102) positioned in said cool zone (zone that is connecting system controller 104 with test fixtures 90,92 and is not receiving any application of temperature, therefore is considered as a cool zone or a zone with atmosphere temperature which is cooler than the one inside chamber 12) adjacent to said temperature controlled zone (12), a first interconnection system (test/conditioning system 104) connecting said power electronics (102), power lines (lines of Vdd and Vss of Figure 5 which are connected to/from wafers 14 and 16) coupled to the wafer (14,16) and circuitry (54,56,58,60) that measures the power lines, the measuring comprising receiving voltage measurements (from 60) or current measurements (from 56).

DeHaven et al. discloses everything above but fails to teach a probe power printed circuit board making connection with power lines. However, **Chong, Jr. et al.** discloses in Figures 6A-6B a probe power printed circuit board (602) making connection with power lines (614 are contact lines on pcb 602 to allow electrical signals go through such as power).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify **DeHaven et al.** teachings by having a probe power pcb making connection with power lines as taught as **Chong, Jr. et al.** to provide power to the rest of the components in the system through the electrical connections between the pcb and power lines.

As to claims 28 and 29, **DeHaven et al.** discloses in Figures 5-7 wherein the circuitry (54,56,58,60) compares the measurements against a programmed limit (VREF

or IREF) and wherein if, according to the comparison, a measurement exceeds the limit, the circuitry shuts off power only to the respective power line that has a measurement exceeding the limit (Col. 8 ln 66- Col. 9 ln 15).

As to claims 30-33 and 37, **DeHaven et al.** discloses everything above but fails to teach a probe signal printed circuit board being rigid, flexible or substantially parallel to and closely spaced from the probe power printed circuit board. However, **Chong, Jr. et al.** discloses in Figures 6A-6B a probe signal printed circuit board (606) being rigid (is rigid enough to support other components on its surface), flexible (printed circuit boards are made of materials that have certain degree of flexibility) and is substantially parallel to and closely spaced (as shown in Figures 6A-6B) from the probe power printed circuit board (602).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify **DeHaven et al.** teachings by having a probe signal pcb parallel and spaced from probe power pcb as taught as **Chong, Jr. et al.** to avoid direct electrical contact between them but having them close enough to connect both to same components on the system.

As to claim 34, **DeHaven et al.** discloses in Figures 5-7 electronics (102) positioned in said cool zone (zone that is connecting system controller 104 with test fixtures 90,92 and is not receiving any application of temperature, therefore is considered as a cool zone or a zone with atmosphere temperature which is cooler than the one inside chamber 12) adjacent to said temperature controlled zone (temperature in chamber 12 is controlled by heating/cooling elements 80,82 and by temperature

circuitry 50,52 in wafer 16). **DeHaven et al.** fails to teach a second interconnection system connecting said electronics to said probe signal printed circuit board. However, **Chong, Jr. et al.** discloses in Figures 6A-6B a second interconnection system (610,612) connecting said electronics (614) to said probe signal printed circuit board (606).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify **DeHaven et al.** teachings by having a second interconnection system connecting said electronics and the probe signal pcb as taught as **Chong, Jr. et al.** to allow the electronics make connection between the probe signal pcb and the rest of the components of the system different from the connection of the probe power pcb.

As to claims 35 and 36, **DeHaven et al.** discloses in Figures 5-7 wherein the electronics (102) are test and burn-in electronics (electronics 102 are connecting function unit 108 and analysis unit 110 will be test electronics and temperature unit 112 will be the burn-in electronics).

Claim 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over **DeHaven et al. (US 5,701,666)** in view of **Chong, Jr. et al. (US 6,377,471)** further in view of **Akram (US 6,640,323)**.

As to claim 38, the combination of **DeHaven et al.** in view of **Chong, Jr. et al.** discloses everything above but fail to teach a transition zone separating said temperature controlled and said cool zone. However, **Akram** discloses in Figure 4 a transition zone (190 and 194 medium which is gas) separating temperature controlled

zone (burn-in test board 114) and cool zone (138, because is not receiving any hot temperature).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the combination of *DeHaven et al.* in view of *Chong, Jr. et al.* teachings by having a transition zone as taught as *Chong, Jr. et al.* to protect the wafers from damage of cool or hot temperatures, by exposing them suddenly to these temperatures.

Allowable Subject Matter

7. Claim 39 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dasse et al. (US 5,399,505) discloses a "Method and apparatus for performing wafer level testing of integrated circuit dice".

Henson (US 6,133,054) discloses a "Method and apparatus for testing an integrated circuit"

Brooks (US 6,144,210) discloses a "Method and apparatus for finding and locating manufacturing defects on a printed circuit board".

Albrow et al. (US 5,834,946) discloses an "Integrated circuit test head".

Weber et al. (US 7,208,968) discloses a "Test system for testing integrated chips and an adapter element for a test system".

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arleen M. Vazquez whose telephone number is 571-272-2619. The examiner can normally be reached on Monday to Friday, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on 571-272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMV



HA TRAN NGUYEN
SUPERVISORY PATENT EXAMINER

6/25/7